

NASA System-Wide Safety and In-Time Aviation Safety Management Systems (IASMS)



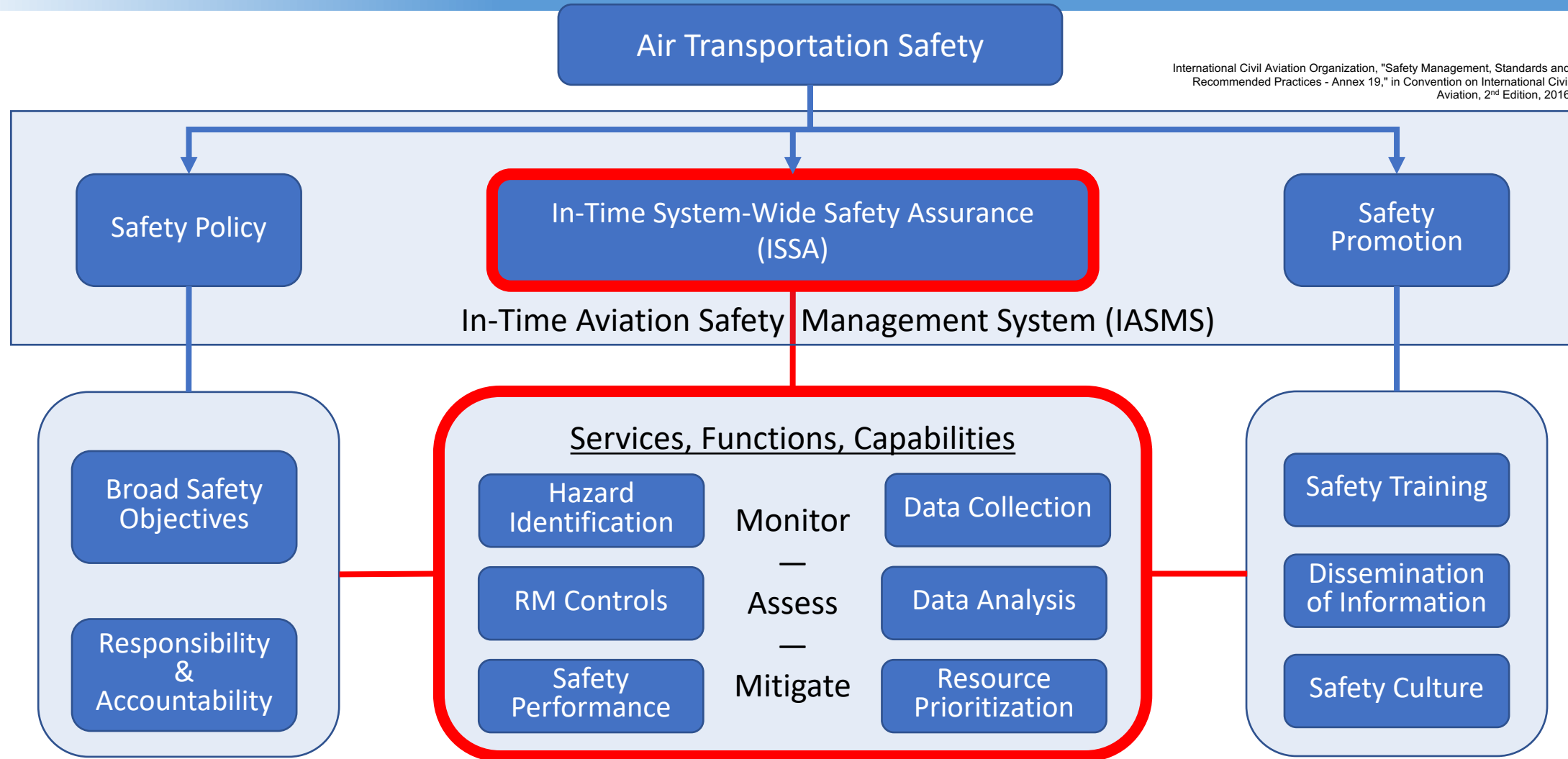
SAE Aerotech Panel
March 15th, 2023

Michael Vincent
System-Wide Safety Project
Airspace Operations and Safety Program
NASA Aeronautics Research Mission Directorate

Evolution of Airspace Operations and Safety

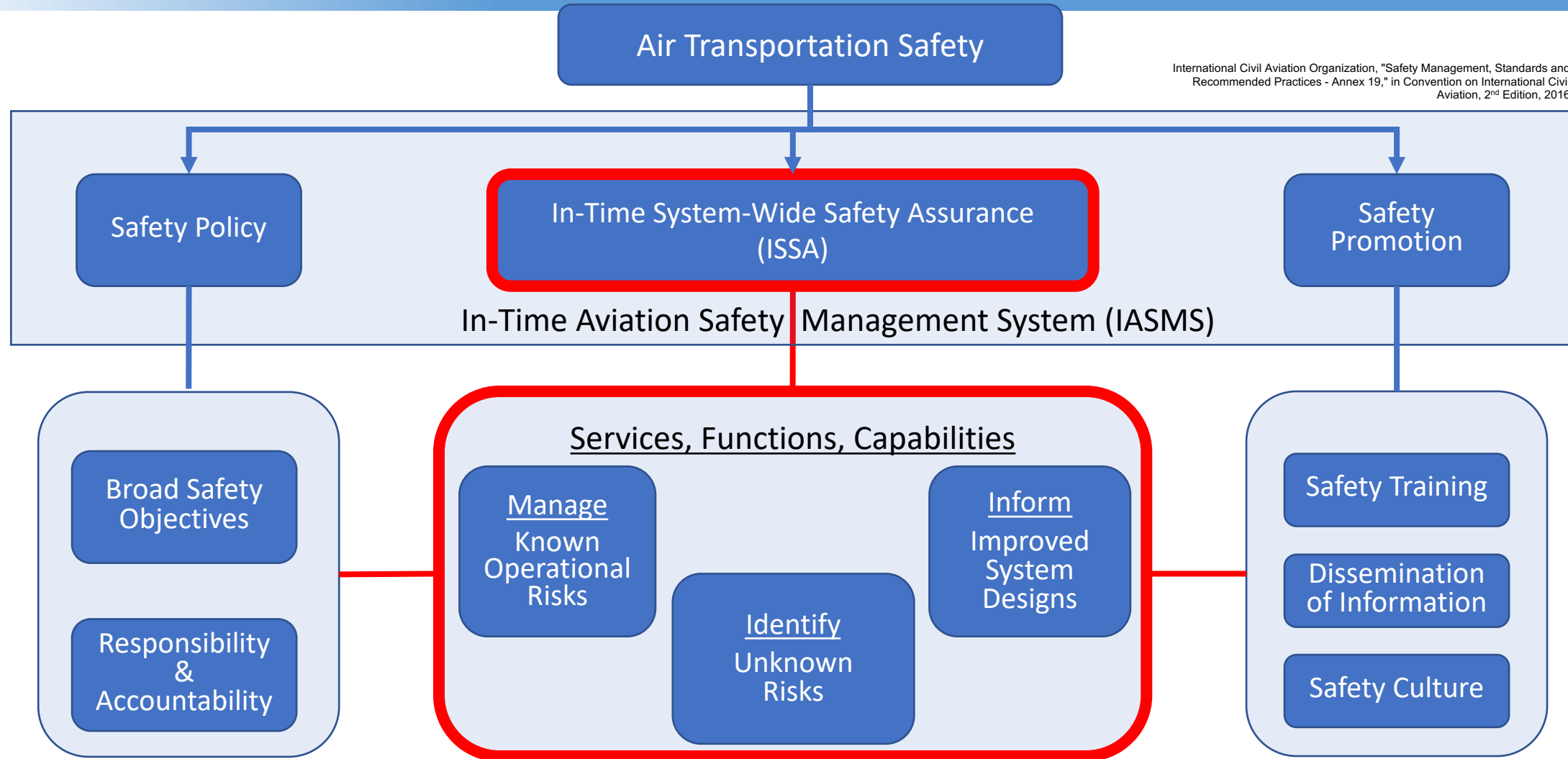


How We Achieve Aviation Safety Tomorrow



Services, Functions, and Capabilities Execute Risk Management and Safety Assurance Actions

How We Achieve Aviation Safety Tomorrow



Quickly manage known operational risks at scale

Quickly identify unknown risks

Quickly inform design

Services, Functions & Capabilities (SFCs)

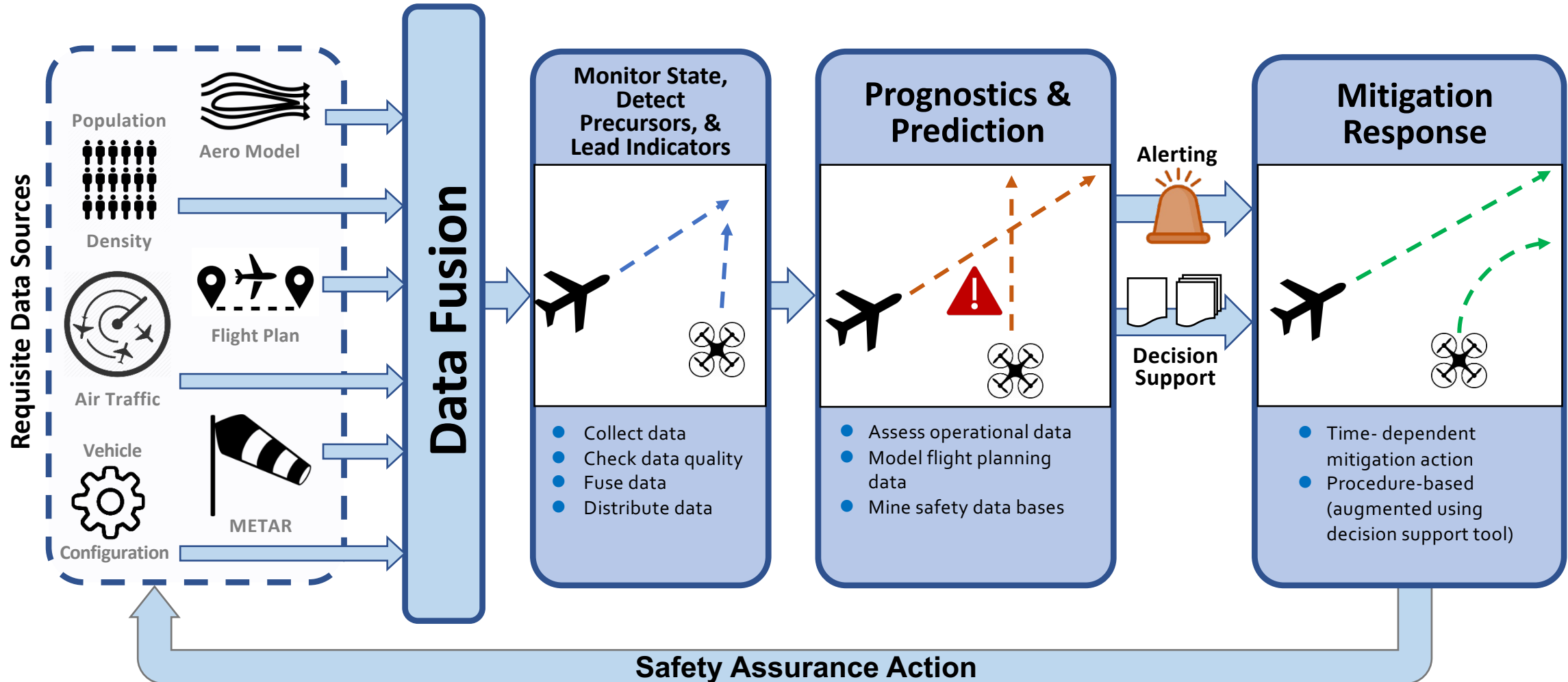


Monitor

Assess

Mitigate

National Airspace System → Data → NAS System State → Elevated Risk State → Safety Assurance Action

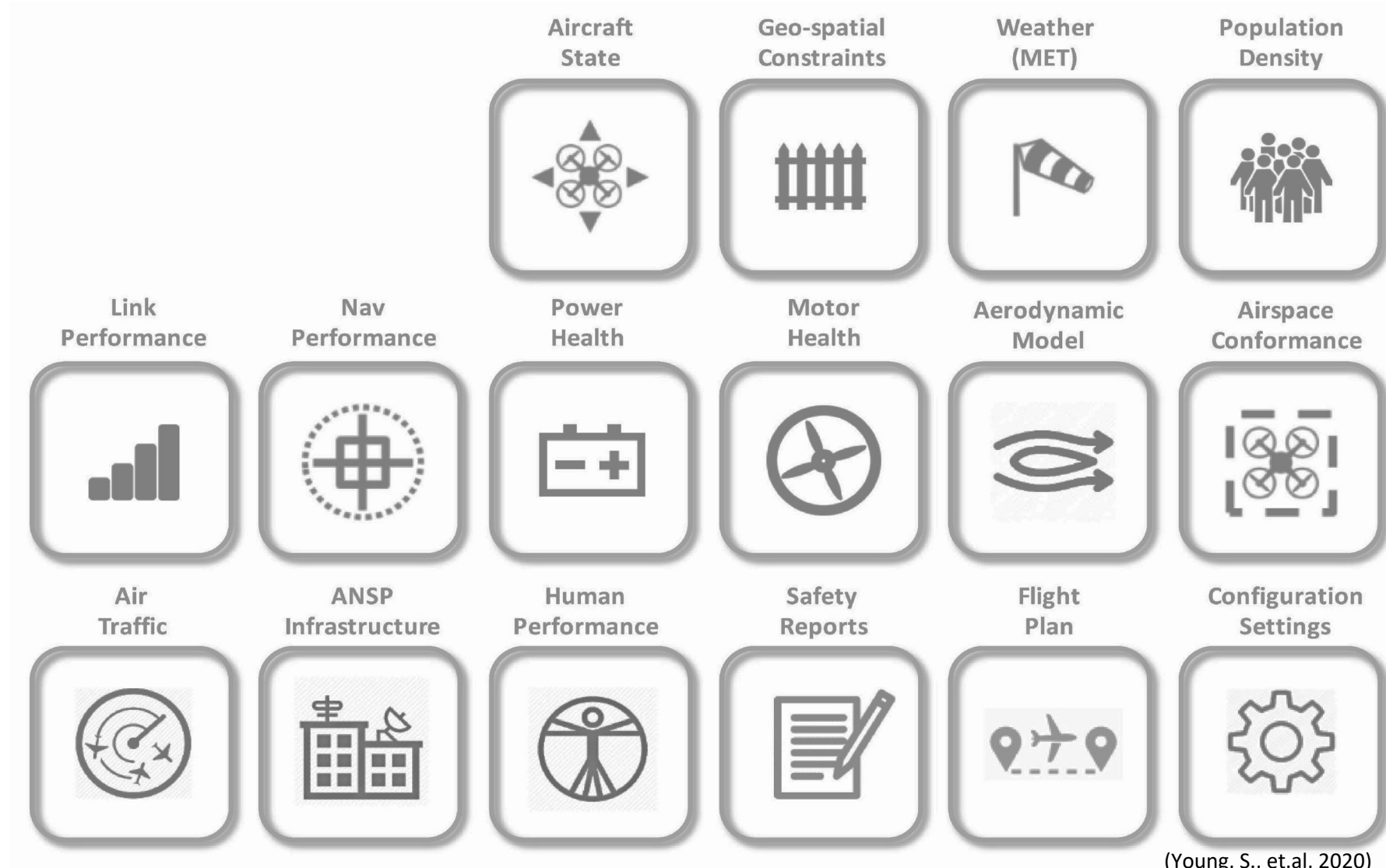


It All Starts with Data...



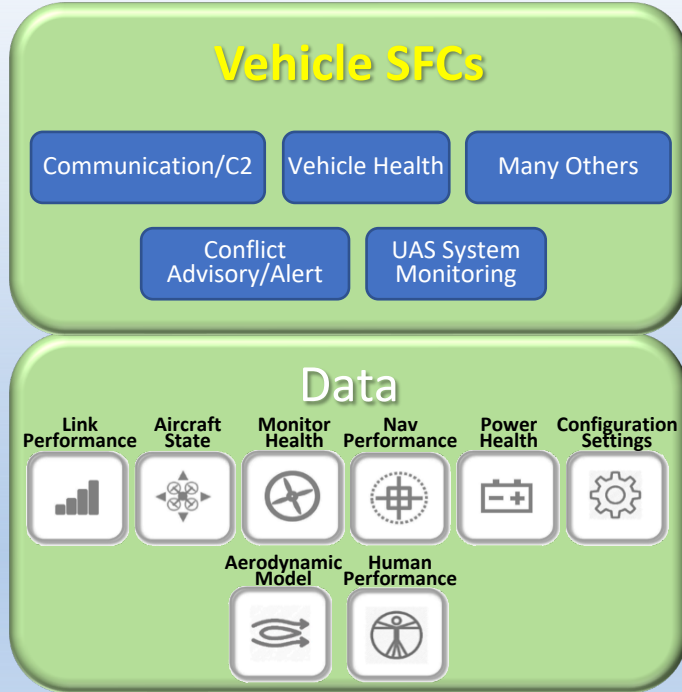
Information classes useful to enable IASMS SFCs

- ANSP Sourced
- Operator Sourced
- Vehicle Sourced
- Supplemental Data Service Provider (SDSP) Sourced
- System Wide Information Management (SWIM) / Flight Information Management System (FIMS) Sourced
- Other Sources...



(Young, S., et.al, 2020)

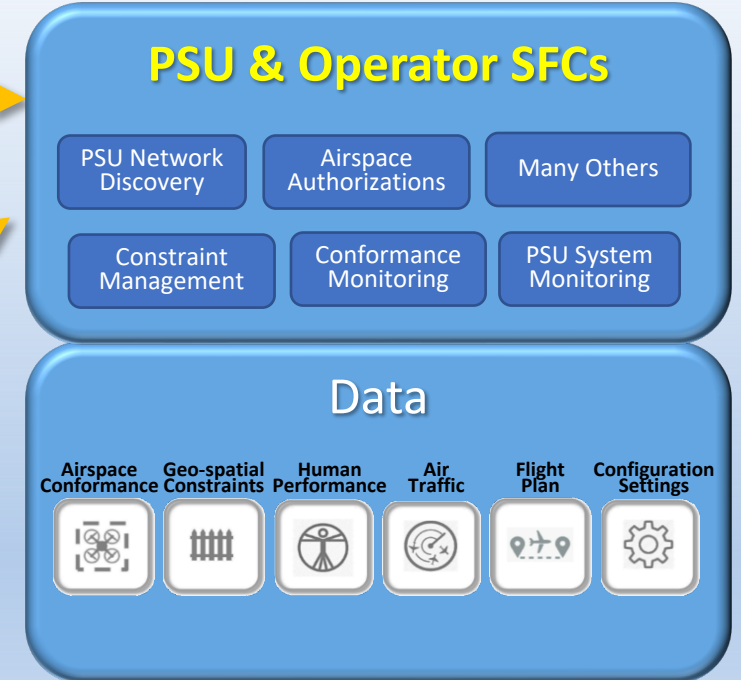
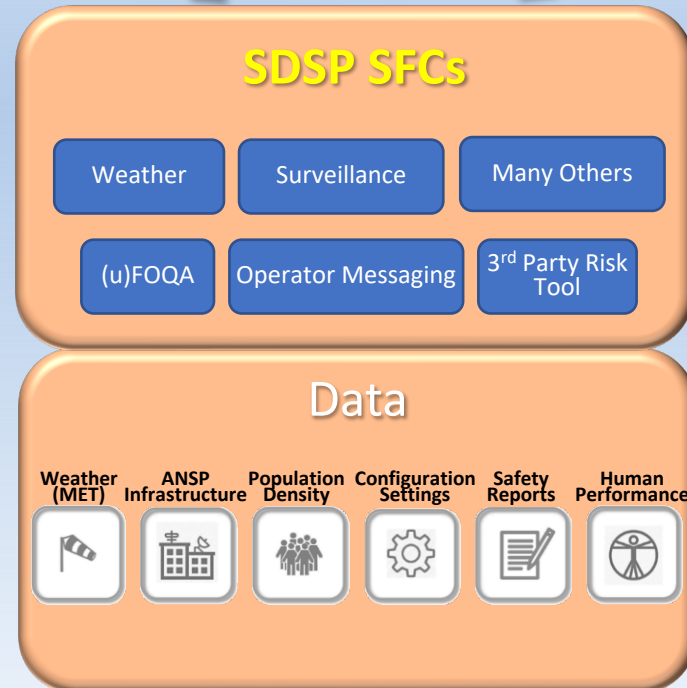
Service Oriented Architecture



SFCs

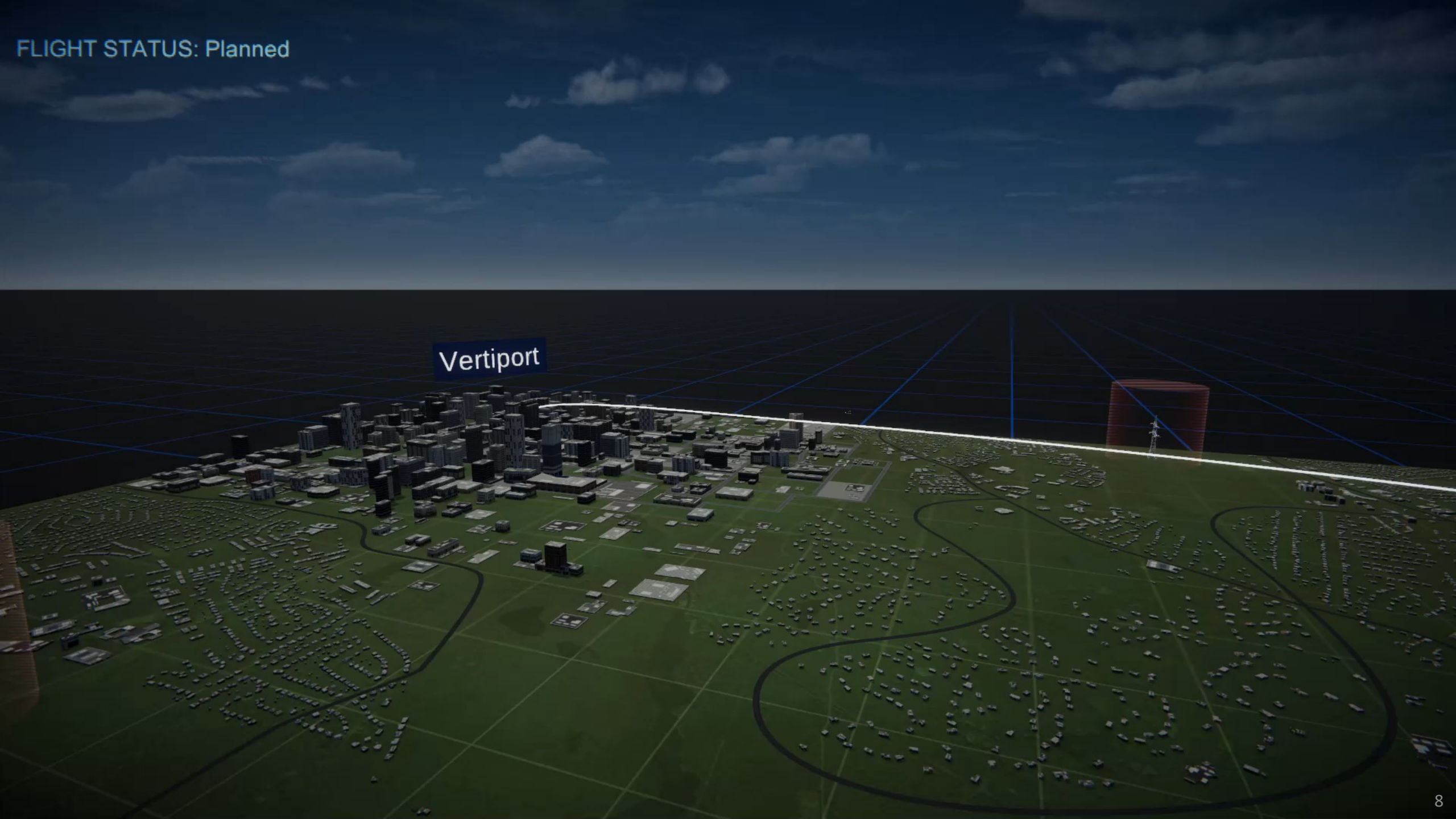
Monitor data, make assessments, and perform or inform a safety assurance action

IASMS



IASMS

Interconnected ISSA SFCs that provide In-Time Risk Management and Safety Assurance



Complexities, Risks and Constraints

